NATIONAL IMAGERY TRANSMISSION FORMAT STANDARD (NITFS)
REQUEST FOR CHANGE (RFC)

RFC CONTROL NUMBER 95-006 (To be filled in by NTB Secretary)	DATE SUBMITTED DATE RECEIVED 9/23/94

ORIGINATOR NITF Test Facility TELEPHONE (602) 538-5458	MAILING JITC ADDRESS TCDB Fort Huachuca, AZ 85613-7020

ORGANIZATION TYPE.   test lab

PRIORITY immediate	FUNCTION operational

DOCUMENT NUMBER   JIEO Circular 9008   PAGE
DOCUMENT   Cert Test Plan   PARAGRAPH

PROBLEM DESCRIPTION
This RFC nominates updates to JIEO Circular 9008 to show NITFS certification test criteria that reflect the publication/approval of the United States Imagery System (USIS) Standards Profile for Image Distribution (SPID).

RECOMMENDED WORDING
See attached

RATIONALE
JIEO Circular 9008 identifies general categories/classes of systems envisioned at the time of publication without the benefit of approved architectures, standards profiles, or specific system requirements documents. The SPID provides a level of specifics for some elements/segments of the USIS Architecture. It is therefore appropriate to add detail to Circ 9008 that will tailor the NITFS certification criteria for those specific elements/secments of the architecture defined in the SPID. The proposed tailoring is done in a fashion that will minimize the impact on those activities currently developing systems to satisfy NITFS certification criteria in the current 9008. The proposed changes will also support incorporation of additional architectures and standards profiles as they are developed and approved for use within the USIS architecture.

REMARKS
Several program offices are developing systems that implement the distributer function defined in the SPID. Delays in approval for the NITFS certification criteria applicable to these systems will cause either programmatic delays and/or additional costs to potentially retrofit these systems to meet NITFS certification requirements once fully defined and approved.

TOTAL COST OF IMPLEMENTATION Minor	PROPOSED TIMEFRAME OF IMPLEMENTATION September 1994

ANTICIPATED USER IMPACT
Minimal, if approved in a timely fashion.

NTB REVIEW DATE NTB RECOMMENDATION SUBSTANTIVE ISSUES	

DATE SUBMITTED TO ISMC
   ISMC REVIEW DATE
 	
   ISMC DECISION
	DATE SUBMITTED TO DISA
	
	   IMPLEMENTATION DATE

NITFS-CCB FORM 1(REVISION 3)

REQUEST FOR CHANGE

RE: Proposed Additions to JIEO Circular 9008 to Reflect USIS SPID

ITEM 1 - **Add the following reference to paragraph 1-3:**

  U. CIO ASD SID0594000, Version 1.0. United States Imagery System Standards Profile for Image Distribution, July 1994.

ITEM 2 - **Add the following verbiage (italics) to paragraph 1-8A:**

  A. General. All fielded and developmental models of Secondary Imagery Dissemination Systems (SIDS) must achieve compliance with the NITFS. Imagery systems that are not necessarily SIDS, but provide digital imagery dissemination functions, must also achieve compliance with the NITFS. *A series of standards profiles are being developed by the CIO to define key points of interoperability within the United States Imagery System (USIS) physical architecture. In the event of conflict, approved USIS standards profiles take precedence over these general policies.*

ITEM 3 - **Add the following verbiage (italics) to paragraph 5-1.**

5-1 GENERAL

  A series of standards profiles are being developed by the CIO to define key points of interoperability within the USIS physical architecture. As these standards profiles are approved, the NITFS certification criteria will be tailored to the specific architectural components identified in the standards profiles and may supersede the details found in this chapter. Chapter 6 describes the NITFS certification criteria for the approved physical architecture elements defined to date.

ITEM 4 - **Add CHAPTER 6 as follows:**

CHAPTER 6

NITFS CERTIFICATION CRITERIA FOR PHYSICAL ARCHITECTURE ELEMENTS

6-1   GENERAL

A.   PURPOSE. The purpose of this chapter is to tailor the NITFS certification criteria for specific physical architecture elements as they become documented and approved components of the USIS physical architecture.

B.   BACKGROUND. Chapter 5 identifies general categories and/or classes of imagery systems envisioned at the time of initial publication of this test program plan. This was done without the benefit of approved architectures, standards profiles, or specific system requirements documents. As architectural documents, standards profiles, and system requirements documents are developed and approved for use within the USIS architecture, this chapter will be updated to address the NITFS certification criteria applicable to those specific physical architecture elements. Prior to the availability of approved architectures, imagery systems were classed according to the Compliance Level (CLEVEL) of NITF files that they were able to properly handle. In the future, imagery systems being developed to implement a specific approved physical architecture element in the USIS will be classed by the standards profile for which it complies.

C.   SYSTEM REGISTRATION. For those systems tested under the criteria of this chapter, the NITFS System Certification Register (see Chapter 4) will reflect the applicable standards profiles(s) and approved architectural element(s) of the USIS for which testing was performed.

D.   APPROVED STANDARDS PROFILES. The following are the approved USIS standards profiles for which certification test criteria are addressed in this chapter.

- USIS Standards Profile for Image Distribution (SPID), reference 1-3.U.

6-2   STANDARDS PROFILE FOR IMAGE DISTRIBUTION

A.   GENERAL. The Standards Profile for Image Distribution (SPID), reference 1-3.U is one of a series of standards profiles defined for key points of interoperability within the ISIS physical architecture. The profile provides definitions of applicable terminology, references, rationale, concept of operations, and identification of the specific industry and government standards necessary to allow connectivity of distributor and users' information systems for
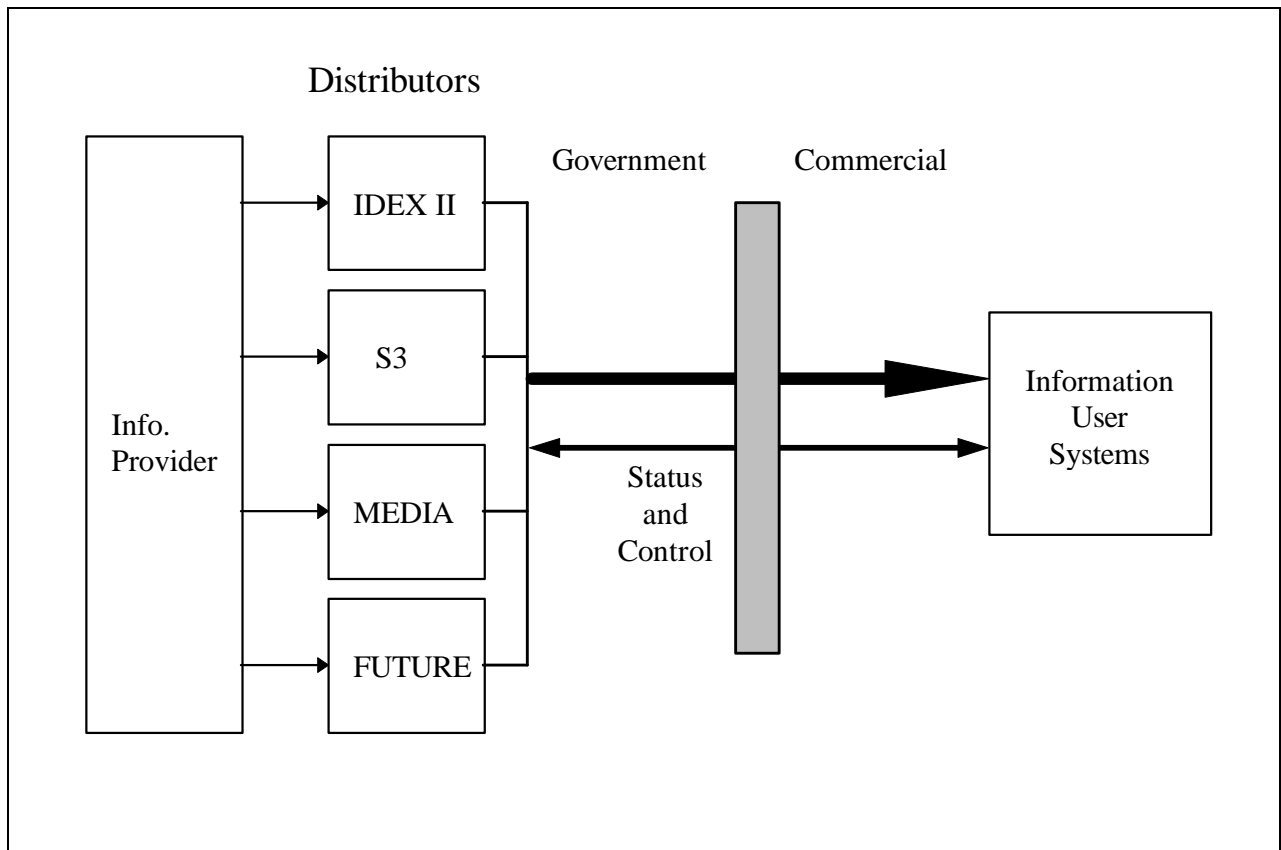
Figure 6-1. Image Data Distribution Architecture

transfer of image files. The image data distribution architecture is depicted in Figure 6-1.
Image distributors will send the data across the interface to user information systems. Near-term electronically networked image distributors include IDEX II and System III. Media distribution will also be implemented. Future distributors will be added as they become available. Further detail regarding the architecture can be found in the USIS SPID, reference 1-3.U.

        B. SCOPE. The primary focus of the USIS SPID is to define the imagery file format that the 'Distributor' architecture element will produce and the electronic network and low-cost media means by which the 'Distributor' will make the image data available. Therefore, the certification criteria described in this section is applicable only to the 'Distributor' architecture element. The 'Information User Systems' are subject to the certification criteria of Chapter 5 since there is a stringent requirement for unpackers to be robust enough to handle all NITF file features (even if they can't pack the feature) that may be invoked by any packing system of equal CLEVEL capability or below.

As the NITFS continues to evolve, there will be additional requirements addressing specific "Information User Systems" (e.g. Support Data Extension (SDE), Vector Quantization (VQ)). As new requirements are validated and added to the NITFS, certification test criteria will be developed and added to the Certification Test and Evaluation program.

C. NITFS CERTIFICATION TEST FUNCTIONAL REQUIREMENTS.

1. <u>NITF Pack</u>. The SPID defined 'Distributor' must be able to pack NITF compliant files from data received from the 'Information Provider'. The specific NITF 2.0 implementation of imagery files generated by the 'Distributor' must conform to the range and boundary conditions described in Appendix A of the USIS SPID, reference 1-3.U. The 'Distributor' must support packing files up to and including CLEVEL 06.

2. <u>NITF Un-Pack</u>. The 'Distributor' is essentially a generate-only system. It is not intended to support routine receipt, unpack, interpret, and display of NITF files. Therefore, the requirement for an unpacker to be robust enough to handle all NITF file features that may be invoked by any packing system does not apply. The 'Distributor' may support the capability to unpack and display NITF files which it creates in support of internal operation, however this does not subject the 'Distributor' to the rigorous NITFS Un-Pack certification requirements.

3. <u>Interoperable Mode</u>. The 'Distributor' is not subject to the general requirement that systems must be able to pack NITF files for each CLEVEL below which it is certified. However, all NITF files generated by the "Distributor' must be marked at the lowest CLEVEL that supports unpacking of the files.

4. <u>Common Coordinate System Size</u>. Reference paragraph 5-4.D.

5. <u>JPEG Compression</u>. The implementation of JPEG compression is optional for 'Distributors'. If implemented, the certification criteria of Chapter 5 apply.

6. <u>Bi-Level Compression</u>. The implementation of Bi-Level compression is optional for 'Distributors'. If implemented, the certification criteria of Chapter 5 apply.

7. <u>ARIDPCM Compression</u>. The use of ARIDPCM compression is not applicable for 'Distributors'.

8. <u>CGM Symbols</u>. The use and implementation of CGM annotation is optional for 'Distributors'. If implemented, the certification criteria of Chapter 5 apply. The NITF 'Label' construct should not be used by 'Distributors'. All annotation requirements are to be satisfied through use of the NITF CGM symbol construct which also supports alphanumeric "labeling" functionality.

9.   Bit-Mapped Symbols.   The use and implementation of bit-mapped symbols is optional for 'Distributor's. If implemented, the certification criteria of Chapter 5 apply.

10.   Text.   *The use and implementation of test is optional for 'Distributor's.   If implemented, the certification of criteria of Chapter 5 apply.*

11.   Monochrome.   'Distributors'   will   produce   16   bits-per-pixel (11/16, 12/16, 15/16, 16/16)   and/or 8 bits-per-pixel grayscale imagery depending on the data source. The support for conversion between 16 bit and 8 bit imagery is optional.

12. Color.   The implementation of color imagery is optional for 'Distributors'.   If implemented, the certification criteria of Chapter 5 apply.

13. TACO2.   The implementation of TACO2 is optional for 'Distributors'.   If implemented, the certification criteria of Chapter 5 apply.

14. Communications Channels.   The 'Distributor's must implement the 'connection element' and 'image transfer element' suite of standards called out in the SPID, reference 1-3.U. These standards include: Fiber Distributed Data Interface (FDDI), Internet Protocol (IP), Internet Control Message Protocol (ICMP), Transmission Control Protocol (TCP), File Transfer Protocol (FTP), Telnet Protocol, and Simple Network Management Protocol (SNMP).

15. Physical Exchange Media.   The physical exchange requirements set forth in Chapter 5 applies for all systems, i.e. all must be able to store NITF files to media devices native to their system, at least using the native tape utility (e.g. TAR).

Distributor's with an operational requirement to exchange NITF files using 8-mm (Exabyte EXB-8500) and/or Super-VHS (Metrum RSP-2150) tape cartridges must do so using the directory format. The last file on each tape on which NITFS files are recorded must be a directory table as defined in the SPID, reference 1-3.U.

16. NITF 1.1 Files.   The implementation of NITF 1.1 file generation is optional for 'Distributors'. If implemented, the certification criteria of Chapter 5 apply.

17. Extended Header Controlled Tags.   Support data will be included in the Image Extended Sub-header data field (IXSHD) in accordance with the requirements identified in the USIS SPID, reference 1-3.U.